

**METHOD OF PROCESSING COLLOIDAL SIZE  
POLYTETRAFLUOROTHYLENE RESIN PARTICLES TO PRODUCE  
BIAXIALLY-ORIENTED STRUCTURES**

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**ABSTRACT**

10 This invention involves forward integration of the art paste extrusion process by adding a step to the processing sequence to change the uniaxially-oriented art form to a desirable planar biaxially-oriented form. This invention also involves the backward integration of the resin preparation to reduce the commercial coagulated dispersion resin particle size (average 500 micron) to the size range of colloidal size particles contained within the original 500 micron particle. In this small particulate form, the polytetrafluoroethylene (PTFE) resin can be blended more homogeneously and extruded with less turbulence in the plug extrusion process, the rheological mechanism of this extrusion process. The size reduction makes processing of micron size fillers possible in up to 90 percent volume of the PTFE resin. This invention also provides a direct and simple method of producing planar biaxially-oriented sheet and a source of resin formulations for fabricating other forms and shapes.